

**In the Claims:**

1. (Withdrawn) An apparatus, comprising:  
a current collector for a fuel cell stack, wherein the current collector physically supports the fuel cell stack within a fuel cell; and  
an electrode element of the fuel cell stack attached as a deposited layer to the current collector, wherein the current collector has openings to allow gases of the fuel cell to flow to and from the electrode element.
2. (Withdrawn) The apparatus as recited in claim 1, further comprising an electrolyte attached as a deposited layer to the electrode element.
3. (Withdrawn) The apparatus as recited in claim 2, further comprising a subsequent electrode element attached as a deposited layer to the electrolyte.
4. (Withdrawn) The apparatus as recited in claim 3, further comprising a subsequent current collector attached as a deposited layer to the subsequent electrode element, wherein the subsequent current collector has openings to allow gases of the fuel cell to flow to and from the subsequent electrode element.
5. (Withdrawn) The apparatus as recited in claim 4, further comprising an electrical interconnect connected to one of the current collectors.
6. (Withdrawn) The apparatus of claim 2, wherein the electrolyte layer is attached to the electrode element as a deposited layer having a thickness between approximately 1 micron and approximately 5 microns.

1           7.     (Withdrawn) The apparatus of claim 2, wherein the electrolyte layer  
2 is attached to the electrode element as a deposited layer having a thickness less  
3 than approximately 1 micron.

4           8.     (Currently Amended) A method, comprising:  
5           obtaining a first current collector layer suitable for physically supporting  
6 parts of a fuel cell stack, wherein the fuel cell stack includes at least two electrodes  
7 and an electrolyte layer; ~~and~~  
8           depositing a first electrode on the first current collector layer;  
9           depositing the electrolyte layer of the fuel cell stack on the first electrode  
10          layer;  
11          depositing a second electrode layer of the fuel cell stack on the electrolyte  
12          layer; and  
13          depositing a second current collector layer of the fuel cell stack on the  
14          second electrode layer.

15          9.     (Currently Amended) The method as recited in claim 8, further  
16 comprising ~~etching the first current collector layer to expose a surface of the first~~  
17 ~~electrode wherein the first current collector is made of a first material suited to~~  
18 ~~support the fuel cell stack and the second current collector is made of a second~~  
19 ~~material not suited to support the fuel cell stack.~~

20          10.    (Currently Amended) The method as recited in claim 8, further  
21 comprising ~~including holes in the formation of the first current collector layer~~  
22 ~~defining an etch pattern on the first current collector configured to expose a~~  
23 ~~surface of the first electrode, wherein the pattern is configured to allow the first~~  
24 ~~current collector layer strength to support the fuel cell stack.~~  
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11. (Currently Amended) The method as recited in claim 8, further comprising depositing an electrolyte layer of the fuel cell stack on the first electrode layer wherein obtaining the first current collector layer comprises a stress relief step to release potential energy of unstable molecular configurations that helps the first current collector layer hold a flat surface during temperature variations.

12. (Currently Amended) The method as recited in ~~claim 11~~ claim 8, further comprising depositing a second electrode layer of the fuel cell stack on the electrolyte layer cleaning at least one flat surface of the current collector material to reduce contact resistance.

13. (Currently Amended) The method as recited in ~~claim 12~~ claim 8, further comprising depositing a second current collector layer of the fuel cell stack on the second electrode layer depositing the first current collector layer on a mandrel surmounted by a release layer.

14. (Currently Amended) The method as recited in ~~claim 13~~ claim 8, further comprising removing some of the first current collector layer and some of the second current collector layer to expose a surface of the first electrode layer and a surface of the second electrode layer the mandrel and sintering the first current collector layer and the first electrode.

15. (Currently Amended) The method as recited in ~~claim 14~~ claim 8, further comprising mounting the fuel cell stack in a fuel cell, wherein a connection between the fuel cell and at least one of the first current collector layer and the second current collector layer physically supports the fuel cell stack in the fuel cell.

16. (Currently Amended) The method as recited in ~~claim 14~~claim 11, further comprising mounting the fuel cell stack in a fuel cell, wherein the first current collector layer and the second current collector layer physically support the fuel cell stack wherein the stress relief step comprises heating the current collector layer followed by slow cooling to allow molecules to settle into stable positions.

17. (Currently Amended) The method as recited in ~~claim 14~~claim 8, further comprising connecting an interconnect to one of the first and second current collector layers wherein the first and second current collector layers are made of the same material, similarly etched and both used to support the fuel cell stack in a fuel cell.

18. (Currently Amended) The method as recited in ~~claim 14~~claim 8, wherein the first and second current collector layers are made of different materials, differently etched and only the first current collector layer is used to support the fuel cell stack in a fuel cell further comprising interconnecting a current collector of a first fuel cell stack to a current collector of a second fuel cell stack.

19. (Currently Amended) The method as recited in ~~claim 14~~claim 8, further comprising sintering at least two layers of the fuel cell stack wherein the first current collector is etched using a temporary material that is removed during a sintering step which leaves the etched first current collector and the first electrode adhered together.

20. (Currently Amended) The method as recited in ~~claim 14~~claim 8, wherein the depositing is accomplished through any one of painting, spraying, plating, electroplating, electrodepositing, vacuum electrodepositing, dip coating, spin coating, sublimating, and evaporating.

1           21. (Currently Amended) The method as recited in claim 8~~claim 14~~,  
2       ~~wherein additionally comprising removing some of the first and second current~~  
3       ~~collector layers is accomplished~~ by any one of chemical etching, dry-etching,  
4       mechanical etching, optical etching, laser etching, and electron beam etching.

5           22. (Currently Amended) The method as recited in claim 8~~claim 14~~,  
6       wherein the first current collector layer has a thickness approximately between ten  
7       and twenty times a thickness of one of the electrodes or the electrolyte.

8           23. (Currently Amended) The method as recited in claim 8~~claim 14~~,  
9       wherein the first current collector layer has a thickness of approximately between  
10      ten and one thousand microns.

11           24. (Currently Amended) The method as recited in claim 8~~claim 14~~,  
12      wherein the first and second electrode layers or the electrolyte layer have a  
13      thickness of approximately five microns.

14           25. (Currently Amended) The method as recited in claim 8~~claim 14~~,  
15      wherein the first and second electrode layers or the electrolyte layer has a  
16      thickness less than five microns.

17           26. (Withdrawn) A method, comprising:  
18           making a patterned form;  
19           depositing a material in the patterned form to make a patterned first current  
20      collector layer suitable for physically supporting parts of a fuel cell stack, wherein  
21      a fuel cell stack includes at least two electrodes and an electrolyte; and  
22           depositing a part of the fuel cell stack on the patterned first current collector  
23      layer.  
24  
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1           27. (Withdrawn) The method as recited in claim 26, further comprising:  
2           depositing a first electrode layer of the fuel cell stack on the patterned first  
3           current collector layer;  
4           depositing an electrolyte layer of the fuel cell stack on the first electrode  
5           layer;  
6           depositing a second electrode layer of the fuel cell stack on the electrolyte  
7           layer;  
8           depositing a second current collector layer of the fuel cell stack on the  
9           second electrode layer; and  
10          removing the patterned form to expose a surface of the first electrode layer.

11          28. (Withdrawn) The method as recited in claim 27, further comprising  
12          removing some of the second current collector layer to expose a surface the  
13          second electrode layer.

14          29. (Withdrawn) The method as recited in claim 26, wherein the  
15          patterned form is a mandrel having a patterned layer of removable material.

16          30. (Withdrawn) The method as recited in claim 29, wherein the  
17          removable material is photo-resist.

18          31. (Withdrawn) The method as recited in claim 29, wherein the  
19          patterned form is removed before one or more of the electrolyte layer, the second  
20          electrode layer, and the second current collector layer are deposited.

21          32. (Withdrawn) The method as recited in claim 29, further comprising  
22          sintering at least two layers of the fuel cell stack.  
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1 33. (Withdrawn) A fuel cell, comprising:  
2 one or more stack assemblies, each stack assembly having an anode  
3 electrode, a cathode electrode, an electrolyte, and at least one supporting current  
4 collector, wherein the supporting current collector provides structural integrity to  
5 the stack assembly; and  
6 one or more fuel cell chambers to contain the one or more stack assemblies,  
7 wherein at least one surface of a fuel cell chamber physically supports a stack  
8 assembly using the supporting current collector of the stack assembly.

9 34. (Withdrawn) The fuel cell as recited in claim 33, wherein each stack  
10 assembly is made by depositing a first electrode layer on the supporting current  
11 collector, depositing an electrolyte layer on the electrode layer, depositing a  
12 second electrode layer on the electrolyte layer, and depositing a second current  
13 collector layer on the second electrode layer.

14 35. (Withdrawn) The fuel cell as recited in claim 34, wherein some of  
15 the supporting current collector is removed to expose the first electrode layer and  
16 some of the second current collector layer is removed to expose the second  
17 electrode layer.

18 36. (Withdrawn) An electronic device, comprising:  
19 a means for electrochemically producing energy;  
20 a means for containing the means for electrochemically producing energy;  
21 and  
22 a current collector to carry electrons to or from the means for  
23 electrochemically producing energy, wherein the current collector physically  
24 supports the means for electrochemically producing energy in the means for  
25 containing.

1           37. (Withdrawn) The electronic device as recited in claim 36, wherein at  
2 least some parts of the means for producing electricity are deposited on the current  
3 collector.

4           38. (Withdrawn) The electronic device as recited in claim 37, wherein at  
5 least some parts of the means for producing electricity are deposited by one of  
6 painting, spraying, plating, electroplating, electrodepositing, vacuum  
7 electrodepositing, dip coating, spin coating, sublimating, evaporating.

8           39. (Withdrawn) A method of using a current collector, comprising:  
9 depositing an electrode on the current collector;  
10 depositing other elements of a fuel cell on the electrode;  
11 physically supporting the electrode and the other elements of a fuel cell in  
12 at least one fuel cell chamber using the current collector;  
13 producing a flow of electrons using the electrode and the other elements of  
14 a fuel cell; and  
15 carrying at least part of the flow of electrons using the current collector.

16           40. (Withdrawn) The method as recited in claim 39, wherein the  
17 depositing includes any one of painting, spraying, plating, electroplating,  
18 electrodepositing, vacuum electrodepositing, dip coating, spin coating,  
19 sublimating, evaporating.  
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